

REMARKS

Claim Objections

Regarding the objection to Claim 1 for the apparent typographical error in the preamble, we agree with the Examiner's consideration of what was intended to be in the preamble, and the error is corrected in this amendment. We appreciate the Examiner's consideration.

Rejections under 35 U.S.C. §103(a)

Regarding the rejections under 35 U.S.C. §103(a) over previously-cited Perkowski in view of newly-cited Howell, we respectfully disagree with the Examiner's conclusions and request reconsideration. For brevity of the record, we incorporate our previous arguments regarding the teachings of Perkowski into the present reply.

We agree with the Examiner that Perkowski fails to teach our claim step:

... each time a request is received from a trader, automatically dynamically updating said links to most current descriptive information items, replacing links to older descriptive information items with links to most current descriptive information items, and adding links to most current descriptive information items which were not previously available;
...

We respectfully disagree that Howell teaches this step or element of our claims.

Howell Fails To Disclose Responsive Actions to Quote Request, and Howell May Not Be Prior Art. Please note that Howell's filing date of the patent application published as US 2007/0055615 A1 is October 10, 2006, many years after our filing date of January 31, 2001. Howell claims priority as a "continuation" of U.S. patent application 09/736,707 (herein after "Howell Parent Application"), which was filed slightly before our filing date on December 15, 2000.

We understand that it is the policy of the USPTO to afford prior art status to the entirety of a later-filed application when it purports to be a "continuation", not a "continuation-in-part", of an earlier-filed patent application. However, such prior art status is rebuttable by an Applicant.

In performing a text comparison of the disclosure of both applications, we find considerable differences. Please see the Appendix to this reply for an automatically generated comparison of the text of the disclosure of Howell and Howell Parent Application. In the Background section, one can see some changes, primarily of clarifying nature. But, in the Description of the Invention Section, please note that there are considerable differences, including, but not limited to, the addition of figures and their related descriptions. Please note that this comparison was automatically generated by cutting and pasting the text of the pre-grant published patent applications from the USPTO's online database of patent applications into WordPerfect (ver. 12.0.0.288), and running a Document-Compare function in WordPerfect.

In particular, Howell's ¶0020 was cited as disclosing "database updated as result of trader requesting stock quote". This particular paragraph is discussing Figure 2, which apparently is Figure 1a in Howell Parent. Figure 1a is discussed in Howell Parent in ¶0021 (of Howell Parent) as follows:

[0021] With reference now to the figures, and in particular with reference to FIG. 1, a block diagram of a stock quoting system utilizing the contact server in accordance with a preferred embodiment of the present invention. Source of stock quote 102 can be any exchange that generates stock quotes such as the New York Stock Exchange. Source 102 sends the stock quotes to field vender 104. Vender 104 parsers the data and multiplexes it to quote server application 106 at a rate of about 1,000-2,000 packets or stock quotes per second. Quote server 106 is located in a regional brokerage office such as Tradecast or Merrill Lynch. Quote server 106 can be any type of server capable of receiving and transmitting information. As shown in step 204, quote server 106 checks to see if the data is a valid stock quote. Quote server 106 contains database 108. Database 108 keeps track of the history of each specific stock quote. If a quote for a particular stock is not in database 108, quote server 106 must add it. If the stock quote is already in database 108, quote server 106 must update database 108. Then, as shown in step 208, quote server 106 checks to see if contact server 110 is requesting the particular stock quote. If so, then quote server

106 sends the stock quote to contact server 110. As shown in step 212, contact server 110 sends the quote to all trader 112s who have requested that particular stock quote. If no trader 112 has requested a particular stock quote, then contact server 110 does not request that particular quote from quote server 106.

There are literally only two more paragraphs in Howell Parent detailed description (total of three paragraphs in the detailed description), of which, ¶0022 describes Figure 1b, and ¶0023 is a customary statement regarding alternate embodiments not disclosed.

We respectfully ask the Examiner to consider that Howell and Howell Parent both "send data to the database" in step 34 (of the Howell 2007 reference) (i.e. update the stock quote database) *before* it is determined if anyone is requesting the quote in steps 34 and 35. Howell Parent shows these steps as 206 ("database the data") and 208, 210 ("send quote to the contact server"). There is no decision block shown or described regarding waiting to update the database data responsive to a quote request as we have described, merely "read data (step 31 in Howell, step 202 in Howell Parent).

Howell (the 2007 reference) describes step 31 in ¶0021 as "[a]fter data has been received by a quote server, as shown in block 31, a determination is made by the quote server 23 as to whether or not the received data is a valid packet, as depicted in block 32."

But, Howell Parent describes the presumably corresponding step 202 only as "read the data from the field vendor 104." And, there is discussion of missing quotes from the quoting source, resulting in an inability to rely on the information for making decisions.

For these reasons, we believe that one of ordinary skill in the art would read Howell and Howell Parent as having a loop of steps which continuously and independently of request activity stores and updates a database with stock quotes as they are available from a quoting source. Their steps relating to forwarding quotes from their database to fulfill a quote request occur *after* and independent of storing the quotes, and merely forward the stored information.

For these reasons, we believe that Howell fails to teach ". . . each time a request is received from a trader, automatically dynamically updating said links . . . " Howell updates their database regardless of whether or not a request for that information has been received, and updates their information responsive to its availability, not responsive to it being requested.

Howell is further silent regarding linked data, or updating links. For this reason, we

believe that Howell fails to teach " . . . automatically dynamically updating said links to most current descriptive information items, replacing links to older descriptive information items with links to most current descriptive information items, and adding links to most current descriptive information items which were not previously available."

For these reasons, we respectfully ask for reconsideration of the rejections under 35 U.S.C. §103(a) over Perkowski in view of Howell as the proposed combination fails to teach all of our claim steps, elements, and limitations, and wherein the Howell reference does not constitute prior art for the information relied upon in the rationale for the rejection.

Request for Indication of Allowable Subject Matter

We believe we have responded to all grounds of rejection and objection, but if the Examiner disagrees, we would appreciate the opportunity to supplement our reply.

We believe the present amendment places the claims in condition for allowance. If, for any reason, it is believed that the claims are not in a condition for allowance, we respectfully request constructive recommendations per MPEP 707.07(j) II which would place the claims in condition for allowance without need for further proceedings. We will respond promptly to any Examiner-initiated interviews or to consider any proposed examiner amendments.

Respectfully,

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APPENDIX

Automatically-Generated Comparison
Using WordPerfect Version 12.0.0.288
of Howell and Howell Parent

MARKUP FORMAT: inserted text is underlined, deleted text is shown in ~~strikeout~~.

Abstract

A system and method for real time dissemination of information and in particular financial information. Still more particularly is provided. One server receives and data bases the information while another server disseminates the information; instead of one server receiving the information, data basing the information, and dissemination the information to all users requesting the information.

RELATED APPLICATIONS

[0001] This application is a continuation of and claims priority to and the benefit of U.S. patent application Ser. No. 09/736,707, filed on Dec. 12, 2000, titled "System and Methods for Disseminating Real Time Information," incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of The Invention

[0003] The present invention generally relates to data processing. Particularly, the present invention relates to a ~~method~~system and methods for ~~delivering real time stock quotes~~disseminating information.

[~~0003~~0004] 2. Description of the Related Art

[~~0004~~0005] It has long been recognized that ~~access~~accesses to timely information regarding current conditions in the various commodities and financial markets ~~is~~are essential to ~~successful and~~ profitable trading and investment. Many complex investment strategies require precise and careful timing of specific transactions in response to fluctuating market conditions. This is particularly true in today's fast-moving markets where the ability to respond quickly to changing market conditions may mean the difference between substantial profits or devastating losses. Many investors rely heavily on real-time stock quotes when implementing their investment strategies. ~~These, and most of those~~ investors get their real-time stock quotes from a brokerage company. ~~A~~Thus, a successful brokerage company must be able to provide ~~up the second~~ stock quotes as accurately and efficiently as possible.

[~~0005~~0006] Currently, ~~stock~~Stock quotes are ~~obtained when NASDAQ~~currently provided by stock exchanges, ~~thesuch as~~ New York Stock Exchange and all other exchanges send various stock quotes, NASDAQ, etc., to a field vender such as ~~SNP~~, Bloomberg or Comstock. ~~The~~After parsing the stock quote information received from the stock exchanges, the field vender ~~collects~~then sends the data from all the sources, parses the data, and multiplexes it stock quote information to a quote server ~~application~~ at a rate of about 1,000-2000 to 2,000 packets ~~or quotes~~

per second. The quote server is typically located ~~in~~ at a regional brokerage office such as TradeCast or Merrill Lynch. The quote server has ~~its own~~ a database and keeps track of the history of each specific stock quote. If the stock quote is not in the database, the quote server adds the stock quote to the database. If the stock quote is already in the database, then the quote server updates the database. Next, the quote server checks to see if a registered user has requested that particular stock quote. Most brokerage ~~houses~~ companies use a subscription based system. If one ~~work station~~ workstation or trader registers a particular stock quote, then every time the tick or quote comes in, the trader gets an update on that stock quote. If numerous customers are ~~looking for~~ requesting a stock quote at the same time, then ~~it takes~~ the quote server will take some time to send the ~~requested stock quote~~ requested stock quotes to all the requesting customers. If ~~this process takes too long, the system can miss some of the stock quotes from the field vender.~~

[0006] ~~Currently, the system is a closed loop. If the system~~ the quote server spends more time delivering stock quotes, however, then the system quote server must spend less time getting stock quotes. This can cause the system to miss stock quotes and not have current data. When the quote is not current, investors do not have the reliable Thus, when the above-mentioned response time to the requesting customers takes too long, the quote server may miss some of the stock quotes sent by the field vender. As a result, investors may not have the most current stock quote information needed to make split second intelligent trading decisions.

[0007] ~~One solution is to make a cache to hold the data. However, a cache is finite and if you make the cache too big then the customers are not going to get the latest quote or update. The goal is to optimize the processing.~~

[0008] ~~Also, when new customers are added to the system, new quote servers must also be added. Currently, when 60-100 new customers are added, a new quote server must be added to ensure the system does not spend too much time delivering quotes and not enough time receiving quotes.~~

[0009] ~~As a result there is a need for a way to optimize the system and make it quicker, more cost effective, and scalable~~ Consequently, it would be desirable to provide an improved method to disseminate the information, e.g., deliver stock quotes, to investors in real-time.

SUMMARY OF THE INVENTION

[0010] ~~It is therefore one object~~ In view of the foregoing, embodiments of the present invention provide an improved system and method to disseminate the information to investors in real-time. According to an embodiment of the present invention to provide a method for improved precision and reliability for real time dissemination of information.

[0011] ~~It is another object of the present invention to provide a method that can easily handle a large increase of users without having to substantially increase the number of servers.~~

[0012] ~~It is yet another object of the present invention to provide a more cost effective method for delivering stock quotes to individual traders~~

[0013] The foregoing objects are achieved as is now described.

[0014] According to one, a system for disseminating real time information is provided. The system includes a quote server positioned to receive stock quote information from a provider, e.g., field vender, etc., a contact server positioned to request a stock quote from the quote server in response to the stock quote request being requested by a user, means associated with the quote server and responsive to the stock quote request for sending a stock quote to the contact server, and means associated with the contact server for disseminating the stock quote received from the quote server to a plurality of users, e.g., trading stations requesting the respective stock quote.

[0009] In accordance with this embodiment of the invention, a method for real time dissemination of information using a quote server to database and send requested information system, quote information from a provider is received by a quote server. In response to a quote request from a user to a contact server and then using, the contact server to send the requested information to users instead of one server receiving, data basing, and disseminating the requests the quote request from the quote server. The quote server then sends a respective quote according to the quote request to the contact server. In turn, the contact server disseminates the quote to the user and two other users requesting the same quote information. By having to send the requested quote information only once, the quote server is able to spend more time in receiving and data basing the quote information and less time in distributing the quote information. This can of the quote server readers the amount of time spent delivering stock quotes and help prevent missing stock quotes sent from the provider. Advantageously, the addition of the contact server in combination with the quote server enables the system to serve upwards of 1,000-2,000 people per combination of the quote and contact server whereas the quote server alone can only serve approximately 60-100 people. The increase in capacity produced by the combination drastically reduces the number of machines needed and people required to operate and maintain the machines. Also, the increase in capacity allows for a large increase in users without having to increase the number of servers substantially.

[0015] The above as well as additional objectives, features, and advantages.

[0010] According to another embodiment of the present invention will become apparent in the following detailed written description.

, a stock quoting system is provided. The stock quoting system includes a quote server positioned to receive stock quote information from a provider, e.g., field vender, etc., a contact server positioned to request a stock quote request from the quote server in response to the stock quote request being requested by at least one user, means for sending a respective stock quote according to the stock quote request to the contact server by the quote server, and means for disseminating by the contact server the stock quote to a plurality of users, e.g., a plurality of trading stations requesting the respective stock quote.

[0011] Methods for disseminating stock quotes in real time are also provided. According to another embodiment of a method, the method includes the steps of receiving stock quote information from a provider by a quote server, and in response to a stock quote request from at least one user to a contact server, the contact server requesting the stock quote request from the

stock quote server, and sending a respective stock quote according to the stock quote request to the contact server by the quote server. The method also includes the contact server, rather than the stock quote server, disseminating the stock quote to a plurality of users, e.g., a plurality of trading stations requesting the respective stock quote.

[0012] According to another embodiment of the method of disseminating stock quotes in real time, the method includes generating a plurality of stock quotes from a stock exchange, sending the plurality of stock quotes to a field vender, parsing the plurality of stock quotes, sending the plurality of stock quotes to a quote vender having a quote server at a relatively high rate of speed, and verifying validity of each of the plurality of stock quotes at the quote server. The method can also include adding a particular stock from the plurality of stock quotes to a database associated with the quote server when the particular stock is not in the database and updating the database with each of the plurality of stock quotes when the particular stock from the plurality of stock quotes is in the database. According to embodiment of the method, the quote server can be located, for example, in a regional stock brokerage office. Advantageously, the database is adapted to track history of each of the plurality of stock quotes. The method can also include determining when a contact server in communication with the quote server is requesting a particular stock quote, sending the particular stock quote to the contact server responsive to a request for the particular stock quote, and sending from the contact server the particular stock quote to a plurality of stock traders that each have requested the particular stock quote. The plurality of stock quotes can be positioned in one or more data packets. As such, the method can also include multiplexing the plurality of data packets to the quote server at a rate of about 1,000 data packets per second or greater. As such, the method can include the quote server receiving the plurality of data packets at a rate in the range of about 1000-2000 data packets per second. Providing the user data at such a high rate allows users, e.g., stock traders, to make quick decisions related to the particular stock responsive to the respective stock trader receiving the particular stock quote.

BRIEF DESCRIPTION OF THE DRAWINGS

~~[0016] The novel features believed characteristic~~[0013] So that the manner in which the features and advantages of the invention, as well as others which will become apparent, may be understood in more detail, a more particular description of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood~~briefly summarized above may be had by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:~~

~~[0017] FIG. 1A depicts a block diagram of a stock quoting system utilizing the contact server in accordance with a preferred embodiment of the present invention;~~

~~[0018] FIG. 1B~~embodiments thereof which are illustrated in the appended drawings, which form a part of this specification. It is to be noted, however, that the drawings illustrate only various embodiments of the invention and are therefore not to be considered limiting of the invention's scope as it may include other effective embodiments as well.

[0014] FIG. 1 is a block diagram of a stock quoting system ~~commonly used;~~

~~[0019] FIG. 2A~~ according to the prior art;

[0015] FIG. 2 is a block diagram of a stock quoting system in accordance with an embodiment of the present invention;

[0016] FIG. 3 is a flow chart of a stock quoting system according to the prior art; and

[0017] FIG. 4 is a flow chart of a method for delivering stock quotes in real-time utilizing the ~~contact server~~ stock quoting system in FIG. 2, in accordance with ~~a preferred~~ an embodiment of the present invention; ~~and~~

~~[0020] FIG. 2B is a flow chart of a stock quoting system commonly used.~~

DETAILED DESCRIPTION ~~OF THE PREFERRED EMBODIMENT~~

~~[0021]~~ [0018] ~~With reference~~ The present invention will now to the figures, and in particular be described more fully hereinafter with reference to the accompanying drawings, which illustrate embodiments of the invention. The present invention may, however, be embodied in many different forms and should not be construed as limited to the illustrated embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout. Prime notation, if used, indicates similar elements in alternative embodiments.

[0019] FIG. 1; illustrates a block diagram of a stock quoting system ~~utilizing the contact server~~ according to the prior art. As shown, a stock quoting system 10 includes a quote server 13 and a database 14. Generally, stock quotes are sent from a source of stock quote 11 to a field vender 12 and then to quote server 13. Source of stock quote 11 are typically stock exchanges, such as the New York Stock Exchange, NASDAQ, etc. Field vender 12 is a trading vender such as Bloomberg or Comstock. Stock traders can request stock quotes from quote server via trading stations 15a-15n. In response to a stock quote request, quote server 13 would send a stock quote to a corresponding one or more of trading stations 15a-15n. Because stock quoting system 10 is a closed system, quote server 13 has to finish sending stock quotes to trading stations 15a-15n before quote server 13 can perform other important functions such as reading data from field vender 12. In other words, if quote server 13 spends more time delivering stock quotes, then quote server 13 has to spend less time obtaining stock quotes. As a result, quote server 13 may miss a stock quote (or data packet) from field vender 12. Because quote server 13 does not have the most current stock quote, database 14 could not be updated, and a trader would not have the most current stock quote information needed to make intelligent trading decisions.

[0020] FIG. 2 illustrates a block diagram of a stock quoting system in accordance with a preferred embodiment of the present invention. As shown, a stock quoting system 20 includes a quote server 23, a database 24 and a contact server 26. Stock quotes are sent from a source of stock quote 21 to a field vender 22 and then to quote server 23. Source of stock quote 21 can

be ~~any~~ exchange that generates stock quotes such as the New York Stock Exchange. Source 102 sends the stock quotes to field vender 104. Vender 104 parses the data ~~similar to source of~~ stock quote 11 depicted in FIG. 1. Field vender 22 parses the information and multiplexes it to quote server application 106 ~~23~~ at a rate of ~~about~~ approximately 1,000-2,000 ~~packets or~~ stock quotes (or packets) per second. Quote server 106 ~~is~~ 23 can be any type of server capable of receiving and transmitting information, and can be located in a regional brokerage office such as TradeCast or Merrill Lynch. Quote server 106 can be any type of server capable of receiving and transmitting information. As shown in step 204, quote server 106 checks to see if the data is a valid stock quote. Quote server 106 contains database 108. Database 108 ~~23~~ is coupled to database 24 that keeps track of the history of each specific stock quote. If a quote for a particular stock is not in database 108 ~~24~~, quote server 106 ~~must~~ 23 can add it ~~the missing stock quote to~~ database 24. If the stock quote is already in database 108 ~~24~~, quote server 106 ~~must~~ 23 can update database 108. Then, as shown in step 208, quote server 106 checks to see if ~~24~~ with the latest information. Stock traders can request stock quotes from contact server 110 ~~is requesting the~~ particular stock quote. If so, then quote server 106 sends the stock quote to contact server 110. As shown in step 212 ~~26~~ via trading stations 25a-25n. Contact server 26 may be, for example, a workstation, a mid-range computer or a mainframe computer. In addition, contact server 110 sends the quote to all trader 112s who have requested that particular stock quote. If no trader 112 has requested a particular stock quote, then ~~26~~ may be coupled to a network such as a local-area network (LAN) or a wide-area network (WAN). In response to a stock quote request, contact server 110 ~~does not request that particular quote from quote server 106.~~

[0022] This is a vast improvement over the old system shown in FIG. 1B. In the old system, when hundreds of trader 112s would request a stock quote, quote server 106 would have to send each trader 112 the stock quote, shown in steps 208 and 214. Because the system was a closed system, quote server 106 would have to finish sending each trader 112 a stock quote before it could move on to step 202 and read the data from field vender 104. The system would spend more time delivering stock quotes, and less time obtaining ~~26~~ would send a stock quote to a corresponding one or more of trading stations 25a-25n.

[0021] FIG. 4 illustrates a flow chart of a method for delivering stock quotes. Often quote server 106 would be delayed and therefore miss a stock quote or data packet from field vender 104. Because quote server 106 did not have the most current in real-time utilizing stock quoting system 20, in accordance with an embodiment of the present invention. After data has been received by a quote server, as shown in block 31, a determination is made by the quote server 23 as to whether or not the received data is a valid packet, as depicted in block 32. If the received data is a valid packet, the received data will be stored in a database coupled to the quote server 23, as shown in block 33. Otherwise, the received data will be discarded or ignored. Then, the quote server 23 checks to see if a contact server 26 is requesting a particular stock quote, as shown in block 34. If the contact server 26 is requesting a stock quote, the database could not be updated and trader 112 would not have the reliable data needed to make split second decisions:

[0023] ~~Those~~ quote server 23 sends the stock quote to the contact server 26, as depicted in block 36. The contact server 26 may send the stock quote to all traders 25a-25n who have requested that particular stock quote. If no trader 25a-25n has made a stock quote request, then the contact server 26 does not request any stock quote from the quote server 23. By comparison, FIG. 3

illustrates a flowchart according to the prior art where hundreds of traders 15a-15n would request a stock quote whereby quote server 13 would have to send each trader 15a-15n the stock quote, shown in steps 34 and 35.

[0022] As has been described, the present invention provides an improved method for delivering stock quotes in real-time. Because the quote server 23 sends a stock quote to the contact server 26 only when a stock quote request has been made from a trader 25a-25n via the contact server 26, the quote server 23v is not burdened with the responsibility of delivering stock quotes for each stock quote request. As such, the quote server 23 can dedicate more processing for receiving new stock quote information from a field vender 22.

[0023] It is also important to note that although the present invention has been described in the context of a fully functional computer system, those skilled in the art will appreciate that the mechanisms of the present invention ~~is~~are capable of being ~~implemented~~distributed as a program product in a variety of forms. While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by, and that the present invention applies equally regardless of the particular type of signal bearing media utilized to actually carry out the distribution. Examples of signal bearing media include, without limitation, recordable type media such as floppy disks or CD ROMs or other storage devices known to those skilled in the art ~~that various changes in form and detail may be made therein without departing from~~including transmission type media such as analog or digital communications links.

[0024] This application is related to U.S. patent application Ser. No. 09/736,707, filed on Dec. 12, 2000, titled "System and Methods for Disseminating Real Time Information," incorporated herein by reference in its entirety.

[0025] In the drawings and specification, there have been disclosed a typical preferred embodiment of the invention, and although specific terms are employed, the terms are used in a descriptive sense only and not for purposes of limitation. The invention has been described in considerable detail with specific reference to these illustrated embodiments. It will be apparent, however, that various modifications and changes can be made within the spirit and scope of the invention as described in the foregoing specification and as defined in the attached claims.